

## REMARKS

This Response is submitted in reply to the non-final Office Action mailed on February 12, 2008. No fee is due in connection with this Response. The Director is authorized to charge any fees that may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 112713-1000 on the account statement.

Claims 1, 3, 5, 21-23, 25-28, 30, 37-39, 41-42, 44-47, 49-51, 57-58 and 77-80 are pending in this application. Claims 2, 10-20, 35, 48, 56 and 59-76 were previously canceled. Claims 4, 6-9, 24, 29, 31-34, 36, 40, 43, and 52-55 were previously withdrawn. In the Office Action, Claims 1, 3, 5, 21-23, 25-28, 30, 37-39, 41-42, 44-47, 49-51, 57-58 and 77-80 are rejected under 35 U.S.C. §103. For at least the reasons set forth below, Applicants respectfully submit that the rejections should be withdrawn.

Claims 1, 5 and 77-80 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,549,552 to Peters et al. (*Peters*) in view of U.S. Patent Publication No. 2002/0100540 to Savitski et al. ("*Savitski*") and U.S. Patent No. 6,331,184 to Abrams et al. ("*Abrams*"). Claims 1, 5, 21, 26-28, 30, 41-42, 45-47 and 51 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2003/0201059 to Holman et al. ("*Holman*") in view of *Savitski* and *Abrams*. Claims 1, 3, 5, 21, 26-28, 30, 37-38, 41-42, 45-51 and 57-58 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Peters* in view of *Savitski*, *Abrams*, *Holman* and the publication ANTEC 2000 Plastics ("*ANTEC*"). Claims 25 and 44 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Peters*, *Holman*, *Savitski* and *Abrams* in view of *ANTEC*. Claims 21-23 and 39 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Holman*, *Savitski* and *Abrams* in view of U.S. Patent No. 4,340,097 to Ammann et al. ("*Ammann*"). Applicants respectfully traverse and disagree with these rejections for at least the reasons set forth below.

Independent Claim 1 recites, in part, permitting transmission of infrared energy to a bond area in order to generate sufficient heat to create a bond between a first article and a second article made of a polymeric material selected from the group consisting of high melt strength polypropylene, styrene-ethylene-butene-styrene block co-polymer, ultra low density polyethylene, very low density polyethylene and combinations thereof. Independent Claims 21, 41 and 51 recite, in part, a method comprising bonding a first article to the second article along a bond area using infrared exposure. The first article comprises a polymeric material selected

from the group consisting of high melt strength polypropylene, styrene-ethylene-butene-styrene block co-polymer, ultra low density polyethylene, very low density polyethylene and combinations thereof, and the second article comprises a polymeric material selected from the group consisting of high melt strength polypropylene, styrene-ethylene-butene-styrene block co-polymer, ultra low density polyethylene, very low density polyethylene and combinations thereof. In contrast, Applicants respectfully submit that the cited references are deficient with respect to the present claims.

The claimed invention provides methods for preparing solventless bonds between polymeric materials comprising specific components. In an embodiment, the method includes using infrared exposure to create bonds, and more specifically, exposing a first article and/or a second article to a specific portion of the infrared spectrum.

Applicants have found that the selected polymeric materials to be used in accordance with the present claims for the first article and the second article can achieve a high bonding strength using the infrared (IR) sealing techniques to form a medical device in accordance with the present claims. The high melt strength polypropylenes can be a homopolymer or copolymer of polypropylene having a melt flow index within the range of 10 grams/10 min. to 800 grams/10 min., more preferably 30 grams/10 min. to 200 grams/10 min., or any range or combination of ranges therein. High melt strength polypropylenes are known to have free-end long chain branches of propylene units. The VLDPE (very low density polyethylene) or ULDPPE (ultra low density polyethylene) typically have a density as measured by ASTM D-792 of less than about 0.915 g/cc and more preferably less than about 0.910 g/cc and even more preferably less than about 0.900 g/cc.

*Peters, Savitski, Abrams, Holman, ANTEC and Ammann*, either alone or in combination, fail to disclose or suggest permitting transmission of infrared energy to a bond area in order to generate sufficient heat to create a bond between a first article and a second article made of a polymeric material selected from the group consisting of high melt strength polypropylene, styrene-ethylene-butene-styrene block co-polymer, ultra low density polyethylene, very low density polyethylene and combinations thereof as required by independent Claim 1. *Peters, Savitski, Abrams, Holman, ANTEC and Ammann*, either alone or in combination, also fail to disclose or suggest a method comprising bonding a first article to the second article along a bond area using infrared exposure with the first article and the second article made of a polymeric material selected from the group consisting of high melt strength polypropylene, styrene-

ethylene-butene-styrene block co-polymer, ultra low density polyethylene, very low density polyethylene and combinations thereof as required by independent Claims 21, 41 and 51. In fact, *Peters*, *Savitski*, *Holman*, *ANTEC* and *Ammann* fail to even disclose or suggest any article of a polymeric material selected from the group consisting of high melt strength polypropylene, styrene-ethylene-butene-styrene block co-polymer, ultra low density polyethylene, very low density polyethylene and combinations thereof.

The Patent Office asserts that *Peters* discloses that an outer tube (35) can be made of a flexible polymer and a balloon (37) attached to the outer tube (35) can be made of conventional materials such as PEBAX®. The Examiner further asserts that *Abrams* teaches that a highly flexible polymer that is functionally equivalent to the PEBAX® material in the catheter art is SEBS and therefore argues that it would have been obvious to substitute the SEBS taught by *Abrams* with the PEBAX® material taught by *Peters*.

Applicants respectfully disagree with the Patent Office's reason for substituting the PEBAX® material taught by *Peters* with an SEBS taught by *Abrams*. The PEBAX® material taught by *Peters* is thermoplastic elastomer comprising a polyether block amide. *Peters* teaches using the PEBAX® material as a preferable material for its advantageous properties in making a balloon catheter. In addition, *Peters* teaches that if the same material such as PEBAX® is used as a material for the outer tube 35 and the balloon assembly 32, an adhesive 40 is not necessary to thermally bond the proximal balloon waist 38 to the distal end of the outer tube 35. Because the PEBAX® material is taught by *Peters* to be an advantageous and a preferred material for his balloon catheter, the skilled artisan would have no reason to substitute it with the SEBS material taught by *Abrams*, which is never disclosed or suggested by *Peters*.

In sum, the cited references fail to disclose or suggest every element of the present claims. Moreover, none of the cited references even recognize the advantages, benefits and/or properties of applying infrared exposure to bond a first article and the second article comprising the selected polymeric materials at their interface in accordance with the present claims, which produces strong, long-lasting bonds between the first article and the second article. For at least the reasons discussed above, even if combinable, the cited references do not teach, suggest, or even disclose all of the elements of independent Claims 1, 21, 41 and 51 and Claims 3, 5, 22-23, 26-28, 30, 37-39, 42, 45-47, 49-50, 57-58 and 77-80 that depend from Claims 1, 21, 41 and 51, and thus, fail to render the claimed subject matter obvious.

Claims 25 and 44 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Peters, Holman, Savitski* and *Abrams* in view of *ANTEC*. Applicants respectfully submit that the patentability of Claims 21 and 41 as previously discussed renders moot the obviousness rejection of Claims 25 and 44 that depend from Claims 21 and 41. In this regard, the cited art fails to teach or suggest the elements of Claims 25 and 44 in combination with the novel elements of Claims 21 and 41.


Accordingly, Applicants respectfully request that the obviousness rejections with respect to Claims 1, 3, 5, 21-23, 25-28, 30, 37-39, 41-42, 44-47, 49-51, 57-58 and 77-80 be reconsidered and the rejections be withdrawn.

For the foregoing reasons, Applicants respectfully request reconsideration of their patent application and earnestly request an early allowance of same. In the event there remains any impediment to allowance of the claims that could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate such an interview with the undersigned.

Respectfully submitted,

BELL, BOYD & LLOYD LLC

BY

  
Robert M. Barrett  
Reg. No. 30,142  
Customer No. 29200  
Phone No. 312-807-4204

Dated: May 12, 2008